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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/516,882

09/12/2005

Christof Holberg

60282.00223

1670

32294

7590

09/03/2008

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EXAMINER

CHAWAN, SHEELA C

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

09/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/516,882 | Applicant(s) HOLBERG, CHRISTOF | |
| | Examiner SHEELA C. CHAWAN | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/03/04,9/12/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary Amendment

1. Preliminary amendment filed on 12/3/04 has been entered.

Claims 1-15 are cancel.

Claims 16-29, are pending in the application.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 12/03/04, 9/12/05, the information disclosure statement is being considered by the examiner.

Drawings

4. The Examiner has approved drawings filed on 12/3/04.

Arrangement of the Specification

5. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-29, are rejected under 35 U.S.C. 102(b) as being anticipated by Steinberg et al, "Reverse Engineering Trimmed NURB Surfaces from Lased Scanned Data", The Solid Freeform Fabrication Conference, Online, December 31, 1998, XP002274134).

As to claim 16, Steinberg et al, a method of creating a three-dimensional model of a tangible existing object (abstract), the method comprising:

digitizing the object to create a polygon mesh of the object (note, using reverse engineering creating a digital representation of the physical object using CAD model);

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breaking the polygon mesh into separate bilinear NURBS patches (note, using reverse engineering creating a digital representation of the physical object using CAD model and also note the paragraphs pervious works, method of brief definition of NURB surface by using a brief description of the least square methods (LSM), also note paragraph of scanning and preprocessing, user input, parameterization, smoothing functions, trimming the surface and the result paragraph); and

uniting the bilinear NURBS patches to form a continuous surface composite of the bilinear NURBS patches to obtain a surface model or solid model of the object(note, using reverse engineering creating a digital representation of the physical object using CAD model and also note the paragraphs pervious works, method of brief definition of NURB surface by using a brief description of the least square methods(LSM), also note paragraph of scanning and preprocessing , user input, parameterization, smoothing functions, trimming the surface and the result paragraph talks about two surface combining or merging).

As to claim 17, Steinberg et al, discloses a method according to claim 16, wherein the step of digitizing comprises obtaining the polygon mesh from point cloud data of the object (note, paragraph conclusion talks about converting point cloud data from digitizers into IGES NURB surface, and using method of LSM function).

As to claim 18, Steinberg et al, discloses a method according to claim 16, wherein the breaking step comprises breaking the polygon mesh into triangular bilinear NURBS patches (abstract, note, B-Spline can be used in multi resolution triangulated mesh can be quickly be produced).

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As to claim 19, Steinberg et al, discloses a method according to claim 16, further comprising the step generating a finite element model from the surface model or solid model (note, using reverse engineering creating a digital representation of the physical object using CAD model and also note the paragraphs pervious works, method of brief definition of NURB surface by using a brief description of the least square methods(LSM), also note paragraph of scanning and preprocessing , user input, parameterization, smoothing functions, trimming the surface and the result paragraph talks about two surface combining or merging).

As to claim 20, Steinberg et al, discloses a method according to claim 16, wherein said uniting comprises stitching the bilinear NURBS patches together (note, using reverse engineering creating a digital representation of the physical object using CAD model and also note the paragraphs pervious works, method of brief definition of NURB surface by using a brief description of the least square methods(LSM), also note paragraph of scanning and preprocessing , user input, parameterization, smoothing functions, trimming the surface and the result paragraph talks about two surface combining or merging).

As to claim 21, Steinberg et al, (note, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 16).

As to claim 22, Steinberg et al, discloses an apparatus according to claim 21, wherein the data processor generates a finite element model of the object from the surface model or solid model (note, using reverse engineering creating a digital representation of the physical object using CAD model and also note the paragraphs

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pervious works, method of brief definition of NURB surface by using a brief description of the least square methods(LSM), also note paragraph of smoothing functions, trimming the surface and the result paragraph talks about generates a finite element model of the object from the surface model or solid model).

As to claim 23, Steinberg et al, discloses an apparatus according to claim 21, wherein the data processing steps are executed in the data processor by software routines (note, CAD solid modeling software which can read as IGES surface. STL output can either be generated from the surface or from the resulting solid or surface model in the CAD software, paragraph trimming the surface talks about executing software routines).

As to claim 24, Steinberg et al, discloses an apparatus according to claim 21, wherein said uniting comprises stitching the bilinear NURBS patches together(note, using reverse engineering creating a digital representation of the physical object using CAD model and also note the paragraphs pervious works, method of brief definition of NURB surface by using a brief description of the least square methods(LSM), also note paragraph of smoothing functions, trimming the surface and the result paragraph talks about generates a finite element model of the object from the surface model or solid model).

As to claim 25, Steinberg et al, (note, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 16).

As to claim 26, Steinberg et al, discloses a computer program according to claim 25, which creates the separate bilinear NURBS patches by breaking the polygon mesh

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into the bilinear NURBS patches through conversion into IGES format (note, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 23).

As to claim 27, Steinberg et al, discloses a computer program according to claim 26, wherein the polygon mesh converted into the IGES format comprises exclusively surface elements of IGES entity #128 (note, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 23).

As to claim 28, Steinberg et al, discloses a computer program according to claim 25, which generates a finite element model of the object from the surface model or solid model through CAD-FEM coupling (note, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 24).

As to claim 29, Steinberg et al, discloses a computer program according to claim 25, wherein said uniting comprises stitching bilinear NURBS patches together (note, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 22).

Other prior art cited

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Karafillis et al., (US. 6,353,768 B1) discloses method and apparatus for designing a manufacturing process for sheet metal part.

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Dougherty (US. 6, 616,347 B1) discloses camera with rotating optical displacement unit.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sheela C Chawan/

8/29/08

Primary Examiner, Art Unit 2624

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